TECHNICAL NOTES

LAKE STATES FOREST EXPERIMENT STATION
U.S. DEPARTMENT OF AGRICULTURE · · FOREST SERVICE

No. 469

The Break-Even Point for Rough 8-Foot Bolts Merchantable as Sawlogs or Cordwood

Integrated logging operations--those producing two or more rough wood products--are common throughout the Lake States and other forested areas. Sawlogs and pulpwood, for example, are often harvested, separated, and sold in different markets. Specifications overlap enough so that bolts of the same size can be sold readily as either product. Where a choice exists, a decision must be made in the woods as to the break-even point which will allow maximum returns.

Common practice locally, on multiproduct operations, is to sell all straight, sound, relatively knot-free bolts as small as 8 feet long with a 6-inch top diameter inside bark as sawlogs, with all smaller bolts going as pulpwood. Whether or not this is sound business practice, depends mainly upon the market prices for bolts offered for sale as sawlogs or pulpwood.

A pine bolt of this minimum size contains only 5 board-feet, Scribner Dec. C log rule, and approximately 0.02 of a cord. Therefore, 200 bolts equal 1 thousand board-feet while 50 bolts equal 1 cord. If woods-run sawlogs are worth $60 per thousand at roadside and pulpwood is bringing $15 per cord, an 8-foot bolt with a 6-inch top would have equal value in either market. If the sawlog price goes up, for instance, bolts of this size should be tossed into the log deck. On the other hand, if the Doyle Rule were used for this illustration, the bolt would have a much higher sales value as pulpwood. It takes 500 8-foot bolts with a 6-inch top to equal 1 thousand board-feet, Doyle Rule.

As a general rule, neither costs of logging nor any other costs need be considered by the seller in making this type of calculation. After a tree has been felled, bucked, and skidded to roadside, market prices alone determine the value of individual bolts.

Exceptions to the general rule may occur and can be taken into account in break-even calculations if (1) stumpage is paid for on the basis of woods' scale after sorting into products, or (2) the wood is sold, f.o.b. cars or mill, and there is a differential hauling cost for the two products. These costs can be easily reckoned with since, unlike logging costs, they are normally known in advance. Also reliability of the prospective buyer, promptness of payment, and steadiness of markets are factors that might outweigh small differences in selling price.

A table showing break-even points for various price ratios is shown on the reverse side of this sheet, together with instructions in its use.

October 1956

R. A. RALSTON, Forester

MAINTAINED AT ST. PAUL 1, MINNESOTA, IN COOPERATION WITH THE UNIVERSITY OF MINNESOTA

Table 1.--Break-even top diameters of 8-foot bolts for various ratios of sawlog to pulpwood prices by three log rules

Bolt top diameter (i.b.)	R = Ratio of sawlog price per M bd.-ft. to pulpwood price per cord (79 cu. ft. of solid wood)[1/]			
	Doyle	Scribner Dec. C	International $\frac{1}{4}$"	Bolts per cord
6	11.1	4.4	2.2	45
7	6.7	3.0	3.0	33
8	5.0	4.0	2.7	25
9	4.2	2.5	2.5	20
10	3.5	2.1	2.1	16
11	3.2	2.5	2.2	13
12	2.8	2.3	2.0	11
13	2.5	2.0	1.8	10
14	2.5	2.1	1.9	8
15	2.4	2.0	1.9	7

1/ Could also be considered as number of rough cords per M bd.-ft.

To use the table:

1. Divide the going market price per M bd.-ft. for woods-run bolts by the price per standard cord. Find the closest ratio (R) in the table under the appropriate log rule. Read the break-even top d.i.b. in the left-hand column. This procedure assumes the closeness of piling indicated in the last column of the table and no change in price per M bd.-ft. with change in log diameter.

2. If stumpage is paid on woods' scale, subtract the stumpage price per M bd.-ft. and per cord from the respective market prices before entering table.

3. If hauling costs vary by products, use the same procedure as in No. 2 above.